Radiographic Evaluation of the Adult Acquired Flatfoot
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Summary:
We studied the intra and interobserver reliability of classic radiographic parameters of flatfoot deformity as well as introduced to new measurements useful in the evaluation of flatfoot deformity.

Abstract:
Hypothesis:
There is poor reliability between observers when measuring the 4 “classic” radiographic parameters in the adult flatfoot deformity.
Two new measurements on the standing AP foot view may be more reliable:
Talar head uncoverage percentage
Talonavicular overhang

Study Design:
Review standing radiographs of flatfoot deformity with independent viewers in order to assess intra and inter-observer reliability of measurements taken.
4 “classic” radiographic parameters
2 new parameters
Evaluate the correlation between these measurements and the observer’s decision to add the Evans lateral column lengthening calcaneal osteotomy to the treatment algorithm

Methods:
6 measurements taken
AP standing foot view
Talar-first metatarsal angle
Talar-navicular angle
Talar head uncoverage %
Talonavicular overhang
Lateral standing view:
Talar-first metatarsal angle
Cuneiform to ground distance

Clinical correlation:
For each set of radiographs, observers were asked if they would they would include an Evans anterior calcaneal lateral column lengthening if performing a reconstruction.
Response options included:
Yes
No
Require more information

Results:
720 radiographs were evaluated
30 sets of AP and Lateral radiographs on 2 separate occasions by each of 6 observers
2160 measurements taken
180 measurements by each observer per session
360 measurements by each observer over 2 sessions
Conclusions:
New Parameters of Talar head uncoverage percentage and Talonavicular overhang
Valid measurement in discussion of flatfoot
Improved reliability when comparing results of treatment
May be superior to previous xray parameters
Easy to use
Useful in the operating room with image intensifier